

CLAIMS

1. A method of adjusting temperature of a machining liquid after use for machining a work piece, comprising the steps of:

feeding the machining liquid and a liquid for adjusting temperature of the machining liquid to a heat exchanger having a ceramic heat exchanging tube and in which both liquids are separated and the machining liquid contacts the ceramic heat exchanging tube;

adjusting the temperature of the machining liquid to a prescribed temperature by means of the liquid for adjusting temperature; and

constructing the ceramic heat exchanging tube such that metal ions do not solve out from the ceramic heat exchanging tube upon contact between the machining liquid and the ceramic heat exchanging tube, said constructing step comprising the step of baking a tube including silicon carbide (SiC) to form the heat exchanging tube.

2. The method according to claim 1, wherein both liquids flow in the heat exchanger as countercurrents.

3. The method according to claim 1, wherein the ceramic heat exchanging tube does not include boron.

4. The method according to claim 1, wherein the machining liquid passes through the ceramic heat exchanging tube

5. The method according to claim 1, wherein the heat exchanger further includes an outer tube covering the ceramic heat exchanging tube.

5 6. The method according to claim 1, wherein the ceramic heat exchanging tube is made by baking silicon carbide (SiC) and resin only.

7. The method according to claim 1, wherein the machining liquid is slurry for abrading or cutting the work piece.

8. The method according to claim 1, further comprising the step of
10 directing the machining liquid in a first direction through the ceramic heat exchanging tube and directing the liquid for adjusting temperature in a second direction opposite to the first direction over the ceramic heat exchanging tube.

9. The method according to claim 1, wherein the heat exchanger further includes inlets and outlets for the machining liquid and the liquid for
15 adjusting temperature, further comprising the step of arranging the inlets and

outlets such that the machining liquid and the liquid for adjusting temperature flow as countercurrents.

10. The method according to claim 1, further comprising the step of directing the machining liquid into contact with an inner circumferential surface of the ceramic heat exchanging tube.

11. The method according to claim 1, wherein said constructing step comprises the step of forming the tube without boron.

12. The method according to claim 1, wherein said constructing step comprises the step of forming the tube from only silicon carbide and resin.

13. The method according to claim 1, wherein the ceramic heat exchanging tube is constructed to increase heat conductivity thereof.